

SOUTHAMPTON

**water
treatment
plant**

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OCT 27 1969

ONTARIO WATER
RESOURCES COMMISSION

ONTARIO WATER RESOURCES COMMISSION

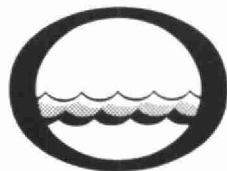
Division of Plant Operations

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Water management in Ontario

Ontario
Water Resources
Commission

135 St. Clair Ave. W.
Toronto 7
Ontario


We are pleased to present you with the Operating Summary for the water treatment facilities operated for you during 1968.

Both the financial and technical information presented should be of assistance to your present and future planning in this important phase of municipal activity.

A new format has been devised to allow greater readability with equally detailed content. We trust that this will meet with your approval.

Our staff wish to express their appreciation for your co-operation throughout the year.


D. S. Caverly,
General Manager.


D. A. McTavish, P. Eng.,
Director,
Division of Plant Operations.

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ONTARIO WATER
RESOURCES COMMISSION

ONTARIO WATER RESOURCES COMMISSION

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SOUTHAMPTON
water treatment plant

operated for

THE TOWN OF SOUTHAMPTON

by the

ONTARIO WATER RESOURCES COMMISSION

1968 ANNUAL OPERATING SUMMARY

FOREWORD

● This operating summary outlines the project's technical capabilities and financial status in 1968. Such information mirrors past and present performance, but a major intention is to anticipate the future -- to solve problems before they occur.

The new format in which this year's data are presented is designed to offer a higher level of readability than in the past, without a corresponding decrease in compactness, accuracy and detail.

Although your Regional Operations Engineer carries the major responsibility for the contents of the report, those involved in its preparation are attached to several Commission sections and divisions. The statistics section of the Division of Plant Operations compiled the information for the graphs and charts. The draughting section of the Division of Sanitary Engineering drew the graphs. The Division of Finance provided all cost data.

Only the close co-operation of these departments allowed the publication of this summary.

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'68 REVIEW

The water plant treated a total of 100.89 million gallons of water, operating at a daily average flow of 0.28 million gallons. The maximum daily flow, 0.82 million gallons, occurred in July.

Equipment failures resulted in high operating costs. Despite stringent maintenance, this increase was not entirely eliminated.

A large proportion of costs was incurred by the high consumption of diatomaceous earth.

PROJECT COSTS

NET CAPITAL COST (Final) Long Term Debt to OWRC	\$ <u>426,300.68</u>
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Debt Retirement Balance at Credit (Sinking Fund) December 31, 1968	\$ <u>27,982.47</u>
---	---------------------

Net Operating	\$ 16,778.68
Debt Retirement	8,592.00
Reserve	2,270.17
Interest Charged	<u>23,814.12</u>

TOTAL	\$ <u>51,454.97</u>
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RESERVE ACCOUNT

Balance at January 1, 1968	\$ 5,130.83
Deposited by Municipality	2,270.17
Interest Earned	327.76

	\$ 7,728.76
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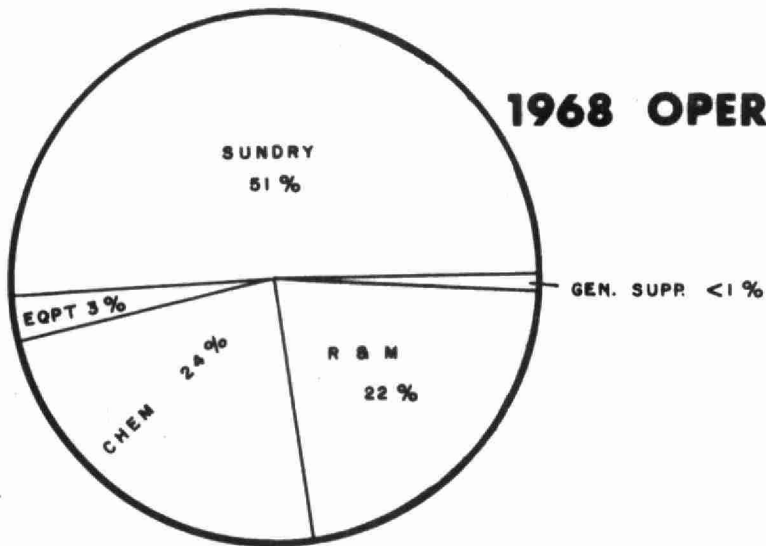
Less Expenditures	<u>622.29</u>
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Balance at December 31, 1968	\$ <u>7,106.47</u>
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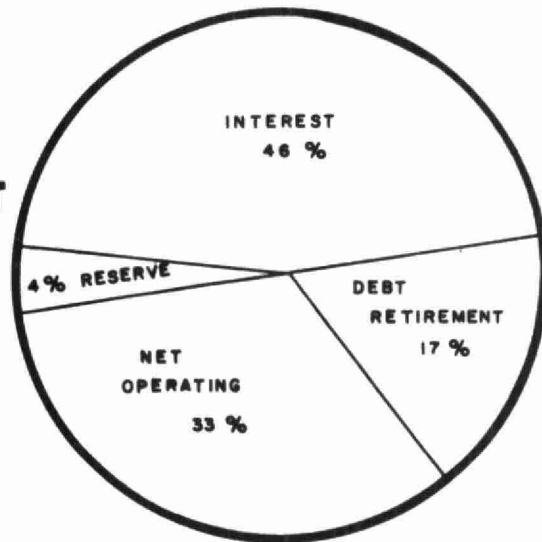
Monthly Operating Costs

MONTH	TOTAL EXPENDITURE	CHEMICAL	GENERAL SUPPLIES	EQUIPMENT	REPAIRS & MAINTENANCE	SUNDRY
JAN	-	-	-	-	-	-
FEB	275.69	103.13	-	12.29	160.27	-
MAR	611.26	-	133.17	243.88	180.17	54.04
APRIL	-	-	-	-	-	-
MAY	1,083.50	-	-	195.05	888.45	-
JUNE	2,674.92	-	-	-	314.47	2360.45
JULY	113.09	-	-	5.18	45.75	62.16
AUG	2.71	-	-	-	2.71	-
SEPT	3,438.13	-	-	-	39.03	3399.10
OCT	3,316.56	3033.39	-	-	283.17	-
NOV	647.54	-	6.27	-	400.95	240.32
DEC	4,615.28	918.15	-	-	1309.15	2387.98
TOTAL	16,778.68	4054.67	139.44	456.40	3624.12	8504.05

1968 OPERATING COSTS



TOTAL ANNUAL COST



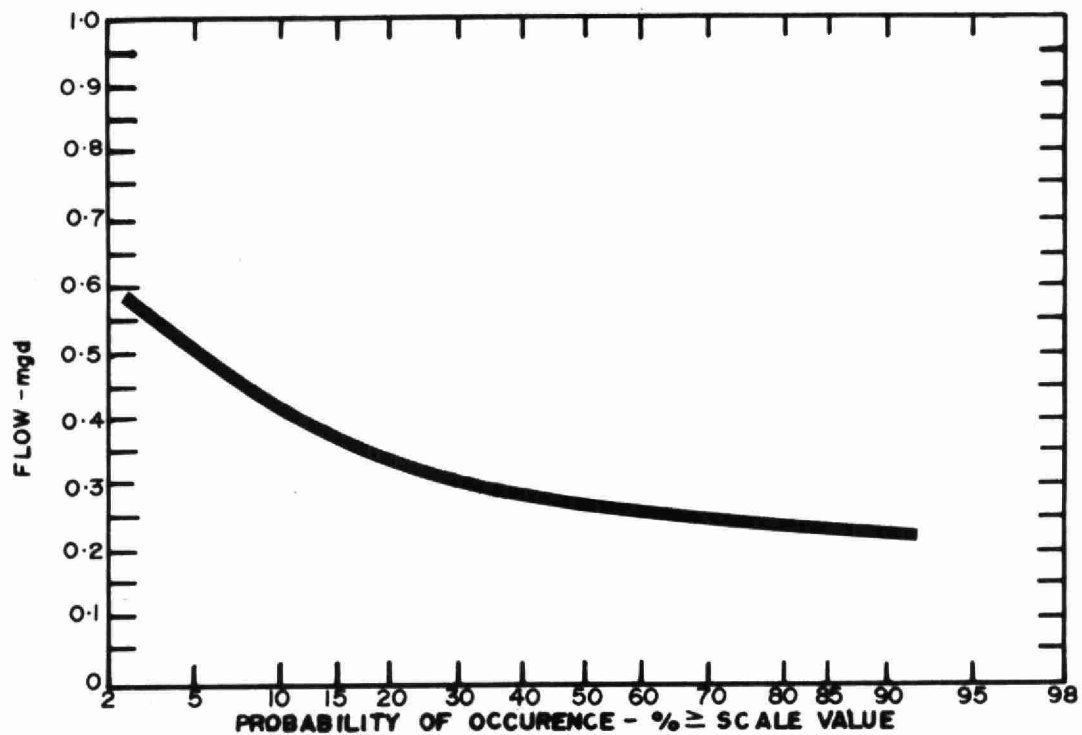
Yearly Operating Costs

YEAR	M.G. TREATED	TOTAL COST	COST PER THOUSAND GALLONS
1967	109.494	\$17,684.60	\$0.16
1968	100.89	16,778.68	0.17

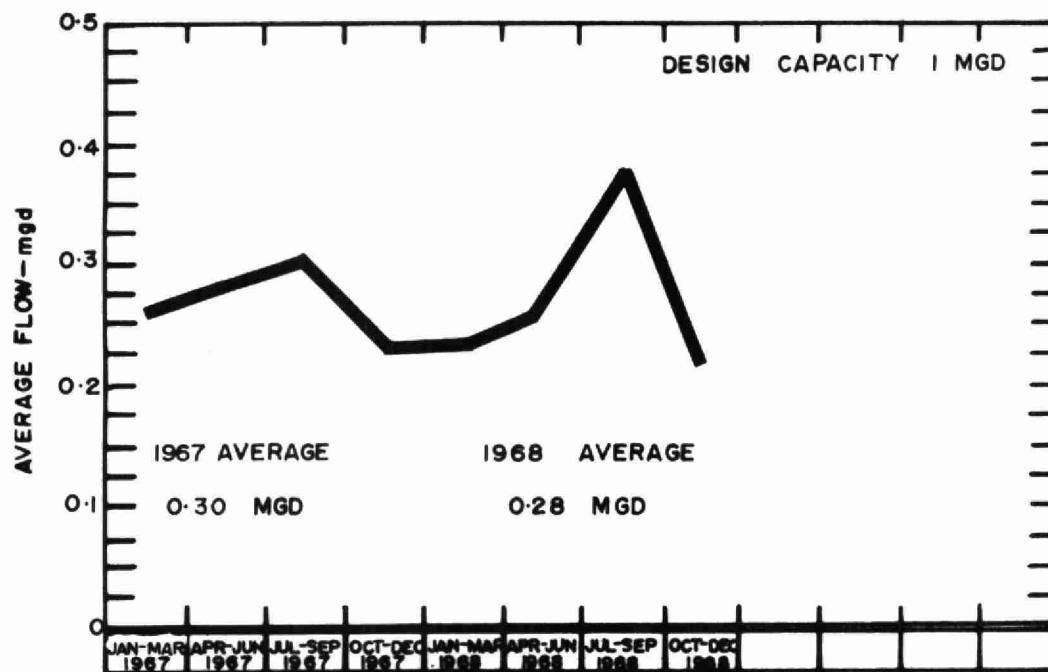
Process Data

The treatment plant design capacity was above the maximum daily flow recorded. The graph of probability of occurrence shows that at no time did the flow reach the design capacity.

This still does not reflect peak demands which exceeded the plant's filtration capacity during the summer months.



FL O W S

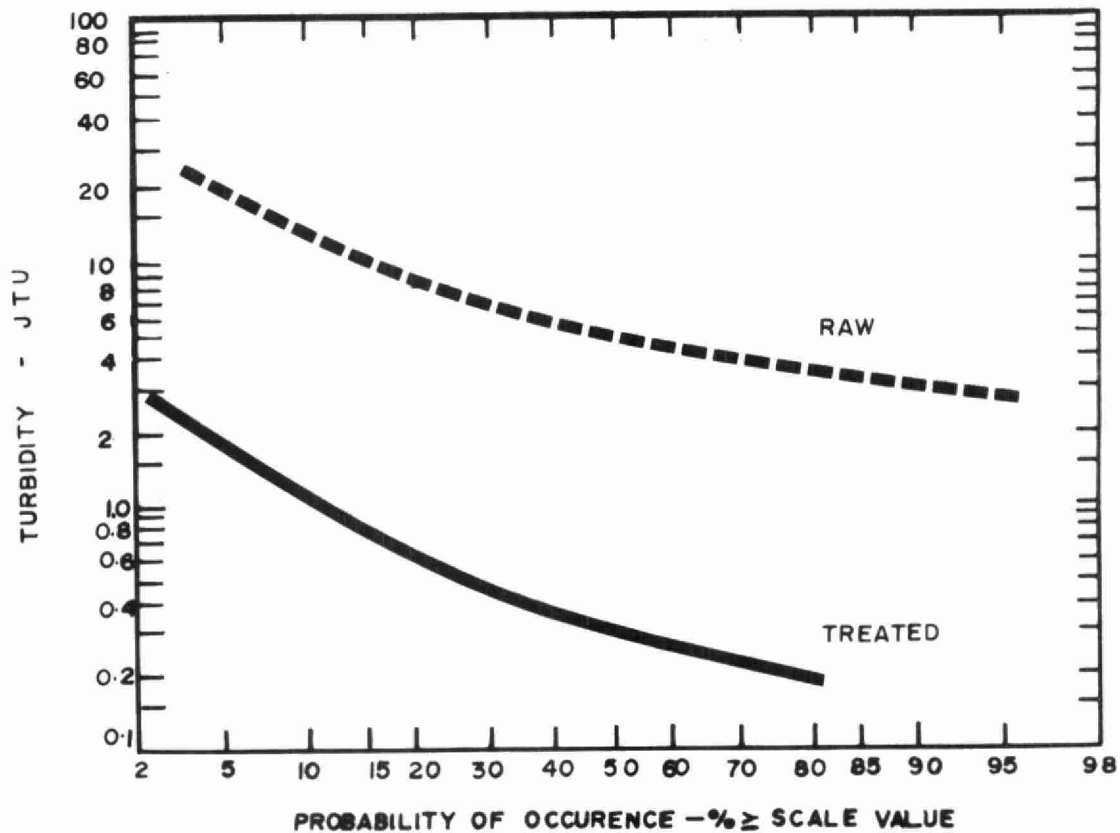


FLOW DATA

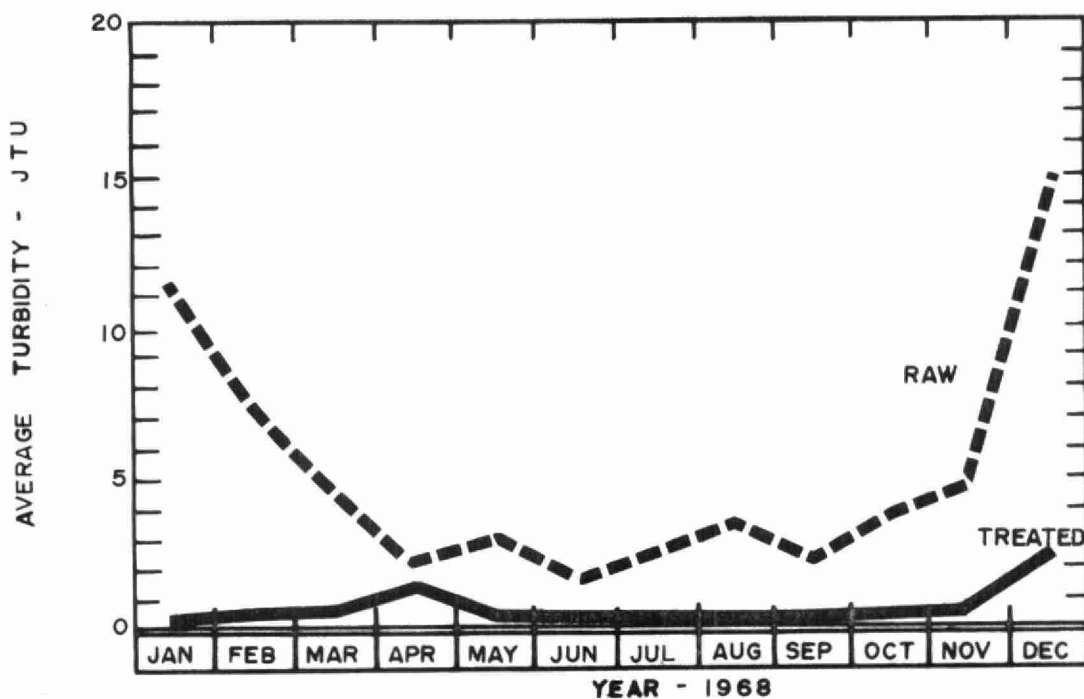
Month	Total Flow (MG)	Avg. Daily Flow (MGD)	Max. Daily Flow (MG)	Min Daily Flow (MG)
January	6.72	0.22	0.25	0.18
February	6.66	0.23	0.28	0.20
March	7.97	0.20	0.30	0.22
April	7.60	0.25	0.29	0.16
May	6.60	0.21	0.30	0.17
June	9.18	0.31	0.47	0.19
July	15.43	0.50	0.82	0.31
August	11.64	0.38	0.57	0.24
September	7.50	0.25	0.37	0.20
October	7.30	0.24	0.50	0.12
November	7.16	0.24	0.27	0.21
December	7.13	0.23	0.42	0.17
Total	100.89	-	-	-
Average	8.41	0.28	-	-

COMMENTS

A total of 100.89 million gallons of water was treated in 1968. The average flow was 0.28 mgd, while the maximum and minimum flows were 0.82 mgd and 0.12 mgd respectively.



TURBIDITY



CHLORINATION AND DISINFECTION

MONTH	COLIFORM				CHLORINE		
	RAW WATER		TREATED WATER		Total Used	Prechlor. Dosage	Postchlor. Dosage
	No. of Samples Taken	Avg. Density No. /100ml	No. of Samples Taken	No. with Coliform 0/100 ml	(lbs.)	mg/l	mg/l
January	1	0	3	0	79	0	1.1
February	3	0	12	1	60	0	0.9
March	4	0	12	0	99	0	1.2
April	4	0	12	0	72	0	0.9
May	3	0	9	0	59	0	0.9
June	4	0	11	0	91	0	1.0
July	3	0	9	0	105	0	0.7
August	2	14	6	0	103	0	0.9
September	5	0	15	0	64	0	0.9
October	4	0	11	0	79	0	1.1
November	4	0	12	0	83	0	1.2
December	4	78	12	0	98	0	1.4
TOTAL	41	-	124	1	992	0	-
AVERAGE	-	-	-	-	83	0	1.0

COMMENTS

The coliform count for the year was minimal. A total of 992 pounds of chlorine was used during 1968, giving an average chlorine dosage to the effluent of 1.0 mg/l.

PROCESS CHEMICALS

Month	Diatomaceous Earth	
	Lbs. Used	Lbs. / Mil. Gal.
January	2550	379
February	9950	1494
March	10500	1317
April	4450	556
May	5950	893
June	4850	525
July	4750	632
August	8350	711
September	3650	487
October	8250	1130
November	7850	1096
December	10150	1424
Total	86250	-
Average	7188	890

COMMENTS

A total of 86250 lbs. of diatomaceous earth was used, giving an average monthly consumption of 7,188 lbs. , averaging 890 lbs. per million gallons of water treated.

WATER QUALITY

CHEMICAL PROPERTY	RAW WATER				TREATED WATER				DESIRABLE STANDARDS
	No. of Samples	Avg.	Max.	Min.	No. of Samples	Avg.	Max.	Min.	
HARDNESS mg/l CaCO_3	7	108	126	96	6	109	130	96	80-100
ALKALINITY mg/l CaCO_3	7	85	96	79	6	90	111	78	30-100
IRON mg/l Fe	7	0.95	2.32	0.52	6	0.19	0.45	0.06	<0.3
COLOUR Units	5	<8	20	5	5	<6	10	5	<5
CHLORIDE mg/l Cl	7	7	9	6	6	18	67	7	<250

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CONCLUSIONS

Although the cost of maintenance and operation appear high at a unit cost of 17 cents per 1,000 gallons, the total unit cost of water (operation, debt retirement, interest and reserve) was 51 cents for 1,000 gallons. This is an acceptable cost for a similar size of plant with a comparably high degree of treatment.

Several small changes in equipment will be made to reduce the amount of filter material used.

